



**Job Number:** SVGJ-150252  
**Company:** PDC  
**Lease/Well:** Law 1  
**Location:** Weld County, CO  
**Rig Name:** MS Wireline  
**RKB:** 0'  
**G.L. or M.S.L.:** GL

**State/Country:** Colorado/USA  
**Declination:** 8.43°  
**Grid:** East To True North  
**File name:** W:\WINSER~1\2015SU~1\PDC\GJ\LA\1.SVY  
**Date/Time:** 09-Nov-15 / 10:36  
**Curve Name:** Surface - 6800' M.D. (Rate Gyro)

**MS Survey**

WINSERVE SURVEY CALCULATIONS  
*Minimum Curvature Method*  
*Vertical Section Plane .00*  
*Vertical Section Referenced to Wellhead*  
*Rectangular Coordinates Referenced to Wellhead*

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
100.00	.26	194.72	100.00	-.22	-.06	-.22	.23	194.72	.26
200.00	.13	193.27	200.00	-.55	-.14	-.55	.57	194.43	.13
300.00	.16	306.64	300.00	-.58	-.28	-.58	.64	205.86	.24
400.00	.19	319.85	400.00	-.37	-.50	-.37	.62	233.68	.05
500.00	.27	316.83	500.00	-.07	-.77	-.07	.77	264.95	.08
600.00	.30	302.10	600.00	.24	-1.15	.24	1.17	281.95	.08
700.00	.30	299.05	700.00	.51	-1.60	.51	1.68	287.66	.02
800.00	.34	326.58	799.99	.88	-1.99	.88	2.18	293.93	.16
900.00	.40	342.78	899.99	1.47	-2.26	1.47	2.69	302.97	.12
1000.00	.47	357.27	999.99	2.21	-2.38	2.21	3.25	312.83	.13
1100.00	.39	347.14	1099.99	2.95	-2.48	2.95	3.85	319.98	.11
1200.00	.38	348.34	1199.98	3.61	-2.62	3.61	4.46	324.00	.01

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
1300.00	.27	354.29	1299.98	4.17	-2.71	4.17	4.97	326.95	.11
1400.00	.38	6.29	1399.98	4.73	-2.70	4.73	5.44	330.30	.13
1500.00	.47	357.45	1499.98	5.47	-2.68	5.47	6.09	333.90	.11
1600.00	.41	349.36	1599.97	6.23	-2.76	6.23	6.82	336.08	.09
1700.00	.37	339.12	1699.97	6.88	-2.94	6.88	7.49	336.84	.08
1800.00	.27	317.33	1799.97	7.36	-3.22	7.36	8.03	336.37	.16
1900.00	.27	299.81	1899.97	7.65	-3.58	7.65	8.45	334.90	.08
2000.00	.29	301.01	1999.97	7.90	-4.01	7.90	8.85	333.11	.02
2100.00	.19	289.78	2099.97	8.08	-4.38	8.08	9.19	331.56	.11
2200.00	.20	283.12	2199.97	8.18	-4.70	8.18	9.44	330.09	.02
2300.00	.20	239.75	2299.97	8.13	-5.02	8.13	9.56	328.28	.15
2400.00	.20	226.56	2399.97	7.92	-5.30	7.92	9.53	326.21	.05
2500.00	.23	211.87	2499.97	7.63	-5.54	7.63	9.43	324.05	.06
2600.00	.26	192.80	2599.96	7.24	-5.69	7.24	9.21	321.83	.09
2700.00	.27	195.12	2699.96	6.79	-5.80	6.79	8.93	319.49	.01
2800.00	.28	192.11	2799.96	6.33	-5.92	6.33	8.66	316.92	.02
2900.00	.29	186.36	2899.96	5.83	-6.00	5.83	8.37	314.22	.03
3000.00	.26	184.75	2999.96	5.36	-6.04	5.36	8.07	311.56	.03
3100.00	.24	160.55	3099.96	4.93	-5.99	4.93	7.76	309.47	.11
3200.00	.20	160.08	3199.96	4.57	-5.86	4.57	7.43	307.95	.04
3300.00	.09	239.08	3299.96	4.37	-5.87	4.37	7.32	306.65	.20
3400.00	.08	308.17	3399.96	4.37	-5.99	4.37	7.42	306.11	.10
3500.00	.15	19.43	3499.96	4.54	-6.00	4.54	7.52	307.08	.15
3600.00	.23	5.71	3599.96	4.86	-5.94	4.86	7.67	309.29	.09
3700.00	.36	19.95	3699.96	5.36	-5.81	5.36	7.90	312.65	.15
3800.00	.30	21.60	3799.95	5.89	-5.61	5.89	8.14	316.42	.06
3900.00	.30	32.98	3899.95	6.36	-5.37	6.36	8.32	319.81	.06
4000.00	.26	65.30	3999.95	6.67	-5.02	6.67	8.35	323.03	.16
4100.00	.17	44.92	4099.95	6.87	-4.71	6.87	8.33	325.57	.12
4200.00	.48	1.12	4199.95	7.40	-4.60	7.40	8.71	328.13	.38
4300.00	.53	2.47	4299.95	8.28	-4.57	8.28	9.45	331.09	.05
4400.00	.56	355.95	4399.94	9.23	-4.58	9.23	10.30	333.58	.07
4500.00	.33	60.14	4499.94	9.86	-4.37	9.86	10.78	336.09	.51
4600.00	.27	71.38	4599.94	10.07	-3.90	10.07	10.80	338.86	.08

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
4700.00	.12	38.66	4699.94	10.23	-3.61	10.23	10.85	340.58	.18
4800.00	.09	33.70	4799.94	10.38	-3.50	10.38	10.95	341.37	.03
4900.00	.15	36.38	4899.94	10.55	-3.38	10.55	11.08	342.25	.06
5000.00	.14	33.40	4999.94	10.76	-3.23	10.76	11.23	343.28	.01
5100.00	.26	30.61	5099.93	11.05	-3.05	11.05	11.47	344.58	.12
5200.00	.47	20.08	5199.93	11.63	-2.79	11.63	11.97	346.50	.22
5300.00	.58	19.61	5299.93	12.50	-2.48	12.50	12.74	348.77	.11
5400.00	.69	17.26	5399.92	13.55	-2.13	13.55	13.72	351.05	.11
5500.00	.45	35.79	5499.92	14.44	-1.73	14.44	14.54	353.19	.30
5600.00	.31	39.56	5599.92	14.97	-1.32	14.97	15.03	354.95	.14
5700.00	.30	37.85	5699.91	15.38	-.99	15.38	15.42	356.32	.01
5800.00	.33	37.64	5799.91	15.82	-.65	15.82	15.83	357.63	.03
5900.00	.27	67.25	5899.91	16.14	-.26	16.14	16.14	359.07	.16
6000.00	.24	62.01	5999.91	16.33	.14	16.33	16.33	.50	.04
6100.00	.27	55.82	6099.91	16.56	.52	16.56	16.57	1.80	.04
6200.00	.07	65.33	6199.91	16.72	.77	16.72	16.73	2.64	.20
6300.00	.12	72.08	6299.91	16.77	.93	16.77	16.80	3.16	.05
6400.00	.17	60.27	6399.91	16.88	1.16	16.88	16.92	3.92	.06
6500.00	.29	40.57	6499.91	17.15	1.45	17.15	17.21	4.83	.14
6600.00	.40	34.50	6599.91	17.63	1.81	17.63	17.72	5.87	.12
6700.00	.47	48.19	6699.90	18.19	2.31	18.19	18.33	7.25	.12
<b>Last Survey Depth Recorded</b>									
6800.00	.22	71.97	6799.90	18.52	2.80	18.52	18.73	8.61	.28